

Permit No. V-2002
Issued: 01/01/2000
Expiration Date: 12/31/2004

AIR POLLUTION CONTROL DISTRICT

150 S. Ninth Street
El Centro, CA 92243
(760) 339 4606

TITLE V OPERATING PERMIT

Issued in Accordance with the Provisions of 40 CFR Part 70
and Rule 900 of the Imperial County Air Pollution Control District

Company Name:	GEM Resources, LLC.
Facility Name:	East Mesa Geothermal Projects, Plant East Mesa (PEM) Units 5 & 6.
SIC Code:	4911 (Electric Services)
Source Type:	Geothermal Power Plant
Plant Location:	3300 E. Evan Hewes Highway, Holtville, California.
Mailing Address:	P.O. Box 86, Holtville, CA 92250
Responsible Official:	Jim Keener
Plant Site Contact:	Gunnar Von Kohler
Telephone:	(760) 356 3020

Issued by:

Stephen L. Birdsall
Air Pollution Control Officer

Date

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Equipment Listing

I. Dual-Flash Geothermal Power Plant

1. Two Turbine Generator Sets (Identical Units)

Manufacturer: Mitsubishi Heavy Industries, LTD

Equipment Description: 18.5 MW at 3,600 RPM (gross)[each unit].

Additional Equipment: Auxiliary Flash Tank, High Pressure Separator/De-mister Separator (one per each unit).

2. Two Cooling Towers (Identical Units)

Manufacturer: Marley Counterflow Cooling Tower

Equipment Description: Marley, Class 400, Counterflow Design, Four (4) Cooling Tower Fans/Motors and Three (3) Cooling Water Circulating Pumps, Drift Mist Eliminators (0.001% Drift).

Maximum Design Process Rate: 43,400 GPM (each unit).

II. Geothermal Wells

Equipment Description: Production, Injection, and Observation Wells.

Production Wells: P/W 88-7, P/W 24-8, P/W 54-7, P/W 33-7, P/W41-7, P/W 71-7, P/W49-7, P/W 82RD-7, P/W 61-12, P/W 54-12, P/W 81-12, P/W 21-7, P/W 25-7, P/W 74-12, P/W 65-7, P/W 61-18, P/W 26-7, P/W 27-7, P/W 72-13.

Injection Wells: I/W 83-7, I/W 63-7, I/W 53-17, I/W 61-7, I/W 81-7, I/W 8-1, I/W 27-8, I/W 84-7, I/W 32-17, I/W56RD-7, I/W 53-12, I/W 13-7, I/W 44-7, I/W 44A-7, I/W 44B-7, I/W 42-18, I/W 85-12, I/W 28-7, I/W 16-7, I/W 78-12.

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Observation Wells: Three (3), 23 feet deep, located on the West, North and Southeast border of the geothermal brine holding basin.

III. Emergency Fire Pump

1. Emergency Fire Pump, Caterpillar Diesel Engine, Model 3306BDI, 231 HP @ 1800 rpm.

IV. Emergency Power Generators

2. Emergency Power Generators, Cummins Diesel Engine, Model NTTA85562, 535 HP @ 1800 rpm.

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Permit Conditions

I. General Permit Conditions

1. The permittee shall obtain an Authority to Construct permit prior to the modification or replacement of any equipment for which a Permit to Operate has been granted, and prior to the installation and operation of any equipment for which an Authority to Construct is required. **Imperial County Air Pollution Control District (ICAPCD) Rule 201, Permits Required, adopted prior to 10/15/79.**
2. No air contaminant shall be released into the atmosphere which causes a public nuisance. **ICAPCD Rule 117, Nuisances, adopted prior to 02/21/72.**
3. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82. **40 CFR Part 82, Protection of Stratospheric Ozone.**
4. Compliance with Permit Conditions
 - a. The permittee shall comply with all permit conditions;
 - b. This permit does not convey property rights or exclusive privilege of any sort;
 - c. Noncompliance with any permit conditions is ground for permit termination, revocation and reissuance, modification, enforcement action, or denial of permit renewal;
 - d. The permittee shall not use the "need to hold or reduce a permitted activity in order to maintain compliance" as a defense for noncompliance with any permit conditions;
 - e. A pending permit action or notification of an anticipated noncompliance does not stay any permit condition;
 - f. Within a reasonable time period, Permittee shall furnish any information requested by the air pollution control officer (APCO) of ICAPCD, in writing, for the purpose of determining: 1) compliance with the permit, 2) whether or

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not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action. **ICAPCD Rule 900.F.2.k, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

II Emission Limits

1. Opacity

The permittee shall not release or discharge into the atmosphere from any single source or emission, any air contaminant as dark or darker as designated as No. 1 on the Ringlemann Chart (20% opacity) for a period or periods aggregating more than three (3) minutes in any hour. **ICAPCD Rule 401, Opacity of Emissions, adopted 11/19/85.**

2. Quantity of Emissions

The permittee shall not release or discharge air contaminants into the atmosphere from any single processing unit source or other contrivance, in excess of 0.2 grains per cubic foot of gas at standard conditions. **ICAPCD Rule 403, Quantity of emissions, adopted 11/19/85.**

3. Sulfur Compounds Emissions

The permittee shall not release into the atmosphere from any single source of emission, sulfur compounds, calculated as sulphur dioxide (SO₂) in excess of 0.2 percent by volume, measured at the point of discharge. **ICAPCD Rule 405, Sulfur Compounds, adopted prior to 11/04/77.**

4. Geothermal Power Plant

Hydrogen sulfide emissions from this facility shall not exceed 7.1 pounds in any one hour during electrical power production, as determined on a semiannual basis. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80, Permit to Operate 2002E, Condition C.**

5. Emergency Power Generators and Emergency Fire Pump

The equipment's engine shall not discharge into the atmosphere any visible air

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contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, which is 20% opacity or greater. **ICAPCD Rule 401, Opacity of Emissions, adopted 11/19/85 and ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition G.4.**

III. Operational Limits

1. The permittee shall apply Reasonable Available Control Measures (RACM) for fugitive dust (PM-10) generated from the plant facility activities including the geothermal well activities. The fugitive dust control shall include all access roads and parking areas that are exclusively used for geothermal operation pertaining to this power plant. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition D.**
2. Emergency Power Generators and Fire Emergency Pump
 - a. Each diesel engine shall be restricted to operate a total of 100 (one hundred) hours per year for weekly testing and maintenance. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition G.1.**
 - b. Operation for other than maintenance purposes shall be limited to provide backup power, and in each instance, be documented to the satisfaction of the District. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition G.2.**
 - c. The permittee shall install an operating hour meter on each power generator's engine. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit 2002E, Condition G.5.**

IV. Monitoring, Testing, and Analysis

1. The permittee shall conduct analysis of hydrogen sulfide content in the cooling tower noncondensable gas line and condensate line on a semiannual basis, starting in the first semester of 2000. During the source test the mass flow rate at both lines shall be recorded and submitted with the report. This source test may be conducted in conjunction with IV.2 and IV.4. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

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2. The permittee shall conduct analysis of benzene content in the cooling tower noncondensable gas line and benzene and ammonia content in the condensate line on a semiannual basis, starting in the first semester of 2000. During the source test the mass flow rate at both lines shall be recorded and submitted with the report. This source test may be conducted in conjunction with IV.4. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
3. Laboratory analysis shall use EPA approved methods. Test for emissions of hydrogen sulfide shall be conducted using U.S. EPA Method 11 or any other EPA Method approved by the District. **Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
4. The permittee shall conduct the following analyses every six months, starting in the first semester of 2000. All analysis results shall be available at the facility for inspection.
 - a. Of turbine condenser condensate and cooling tower blowdown for: ammonia, arsenic, beryllium, cadmium, chromium, copper, hydrogen sulfide, lead, manganese, mercury, nickel, radon, selenium, and zinc.
 - b. Of the noncondensable gases vented for: hydrogen sulfide, ammonia, benzene, arsenic, mercury, radon, toluene, and xylene. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition E.**

V. Reporting Requirements

1. The permittee shall report any deviation from requirements in this Permit to Operate, other than deviations reported to the District pursuant to the District Upset/ Breakdown rule, to the APCO within 2 days of occurrence. The permittee shall use District approved forms to report any deviations. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
2. The permittee shall submit a written monitoring report to the ICAPCD every six months. The report shall be submitted before the end of July and January of each operating year, starting in July 2000. The report shall identify any deviations from

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permit requirements, including those previously reported to the APCO. All reports of a deviation from permit requirements shall include the probable cause of the deviation and any preventive or corrective action taken. The permittee shall use District's approved forms for the report regarding deviation from permit requirements and shall also include a written statement from the responsible official which certifies the truth, accuracy, and completeness of the report. When no deviations have occurred for the reporting period, such information shall be stated in the report. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

3. The permittee shall submit to the ICAPCD a semiannual emission report of hydrogen sulfide and benzene based on analyses conducted pursuant to the requirements of Sections IV.1 and IV.2. The report shall be submitted within the first month of the following operating semester, starting in the first semester of 2000. Hydrogen sulfide and benzene emissions shall be reported in lb/hr. **ICAPCD Rule 900.F.2.e, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
4. The permittee shall demonstrate compliance with condition II.2, Quantity of Emissions, based on analysis conducted pursuant to condition IV.1 and IV.2. A report shall be submitted to the ICAPCD every six months. The report shall be submitted within the first month of the following operating semester, starting in the first semester of 2000. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
5. The permittee shall demonstrate compliance with condition II.3, Sulfur Compounds Emissions, based on analysis conducted pursuant to condition IV.1. A report shall be submitted to the ICAPCD semiannually. The report shall be submitted within the first month of the following operating semester, starting in the first semester of 2000. **ICAPCD Rule 900.F.2.g, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
6. The permittee shall submit to the ICAPCD an annual report by the end of February of the following operating year. This report shall include the following items:
 - a. Analysis conducted pursuant to the requirements of section IV.4 above;

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- b. Types and quantities of cooling tower additives.
 - c. Net electrical megawatt-hours sold for the reporting year.
 - d. Total standby diesel generator hours.
 - e. Based on analysis conducted pursuant to section IV.4, an emission inventory in tons per year per each pollutant for the facility.
 - f. Total diesel consumption from all stationary equipment.
 - g. Status of all wells under the project. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002E, Condition F.**
7. The permittee shall submit a written report to the ICAPCO within ten calendar days after a breakdown occurrence has been corrected. This report shall include: a) a statement that the occurrence has been corrected, together with the date of correction and proof of compliance; b) the reason(s) or cause(s) of the occurrence; c) a description of the corrective measures undertaken; and d) the type of emission and estimated quantity of the emissions caused by the occurrence. **ICAPCD Rule 111.D, Equipment Breakdown, adopted 12/11/79.**

VI. Recordkeeping Requirements

- 1. Records of all monitoring and support information shall include the following: 1) date, place, and time of measurement or maintenance activity; 2) operating conditions at the time of measurement or maintenance activity; 3) date, place, name or company or entity that performed the measurement or maintenance activity and the methods used; and 4) results of the measurement or maintenance. **ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
- 2. Records of all required monitoring data and support information shall be retained for at least five years from date of initial entry. **ICAPCD Rule 900.F.2.f, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

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3. The permittee shall maintain a log showing hours of operation and routine repairs of the emergency power generators and emergency fire pump. The log shall be maintained in the premises and be available for inspection by the ICAPCD. **ICAPCD Rule 207, New Source Review, adopted prior to 11/10/80; Permit to Operate 2002C, Condition G.3.**

VII. Well Maintenance and Well Drilling Portable Sources

1. District-permitted portable sources shall meet all applicable District, state, and federal requirements while operating at this facility. **ICAPCD Rule 900.L.2.t, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
2. District-permitted portable sources shall specify the monitoring methods, or other methods (e.g., air quality modeling) approved by the ICAPCO, that will be used to demonstrate compliance with all District, state, and federal requirements. **ICAPCD Rule 900.L.2.t, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
3. District-permitted portable source shall notify the ICAPCO within ten working days prior to start operating at this facility. **ICAPCD Rule 900.L.2.t, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
4. If the portable source is registered with the State as an alternative for District permitting requirements, the portable equipment shall comply with State registration requirements. A copy of the State registration shall be readily available whenever the portable equipment is at the facility. **ICAPCD Rule 900.L.2.t, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

VIII. Emergency Provisions

1. The permittee shall notify the ICAPCD of any upset conditions, breakdown or schedule maintenance which cause a violation of emission limitations prescribed by District Rules and Regulations, or by State law. The District shall be notified as soon as reasonably possible but not later than two (2) hours after its detection. The completion of corrective measures or the shut down of emitting equipment is required within 24 hours of occurrence of a breakdown condition. **ICAPCD Rule**

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111.A, Equipment Breakdown, adopted 12/11/79.

2. If the breakdown condition will either require more than 24-hours to correct or persist longer than the end of the production run (except for continuous monitoring equipment, for which the period shall be ninety-six (96) hours), the owner or operator may, in lieu of shutdown, request the Air Pollution Control Officer to commence the emergency variance procedure. **ICAPCD Rule 517, Emergency Variance, adopted 10/11/79 {District only}.**
3. Within two weeks of an emergency event, the operator shall submit to the District a properly signed, contemporaneous log or other relevant evidence which demonstrates that: a) an emergency occurred; b) Permittee can identify the cause(s) of the emergency; c) the facility was being properly operated at the time of the emergency; d) all steps were taken to minimize the emissions resulting from the emergency; and e) within two working days of the emergency event, the permittee provided the District with a description of the emergency and any mitigation or corrective actions taken. **ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**
4. In any enforcement proceeding, the permittee has the burden of proof for establishing that an emergency occurred. **ICAPCD Rule 900.F.2.I, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

IX. Compliance

1. Compliance Certification

The permittee shall submit compliance certification reports to the U.S.EPA, Director, Air Division, 75 Hawthorne Street, AIR-3, San Francisco, CA 94105 and the APCO every 12 months. These reports shall be submitted by the end of February of each preceding operating year. The reports shall include the following requirements: a) identify the basis for each permit term or condition and a means of monitoring compliance with the term or condition; b) the compliance status and method(s) used to determine compliance for the current time period and over the entire reporting period; and c) any additional inspection, monitoring, or entry requirement that may be promulgated pursuant to sections 114(a) and 504(b) of the CAA. The permittee shall use District approved forms for the compliance certification and shall also

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include a written statement from the responsible official which certifies the truth, accuracy, and completeness of the report. **ICAPCD Rule 900.F.2.n, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

X. Right of Entry

1. The Regional Administrator of United States Environmental Protection Agency (U.S. EPA), the Executive Officer of the California Air Resources Board, the APCO, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises:
 - a. To inspect the stationary source, including equipment, work practices, operations, and emissions-related activity; and
 - b. To inspect and duplicate records required by this Permit to Operate; and
 - c. To sample substances or monitor emissions from the source or other parameters to assure compliance with the permit or applicable requirements. Monitoring of emissions can include source testing. **ICAPCD Rule 900.F.2.j, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

XI. Severability

1. The provisions of this Permit to Operate are severable and if any provisions of this Permit to Operate are held invalid, the remainder of this Permit to Operate shall not be affected thereby. **ICAPCD Rule 900.F.2.m, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**

XII Permit Life

1. This Permit to Operate shall become invalid five years from the date of issuance unless a timely and complete renewal application is submitted to the District. The permittee shall apply for renewal of this permit no earlier than 18 months before the date of expiration. Upon submittal of a timely and complete renewal application, this permit to operate shall remain in effect until the APCO issues or deny the renewal application. **ICAPCD Rule 900F.2.o, Procedures for Issuing Permits to**

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XIII. Payment of Fees

1. The permittee shall remit the Title V annual fee to the District in a timely basis. Failure to remit fees on a timely basis shall result in forfeiture of this Permit to Operate. Operation without a Permit to Operate subjects the source to potential enforcement action by the District and the U.S. EPA pursuant to section 502(a) of the Clean Air Act. **ICAPCD Rule 900F.2.p, Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal CAA Amendments of 1990, adopted 12/14/93.**